Application of GC-IMS to the authentication of Iberian pig commercial categories and the corresponding feeding regime using faecal volatilome information

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INTRODUCTION

- The **Iberian pig** is an autochthonous breed traditionally reared in the southwest of the Iberian Peninsula, feeding resources from the ecosystem called "**dehesa**"
- There are three different categories for commercialising these types of Iberian products depending on the **feeding regime**
- The most appreciated category is the **acorn-fed** Iberian pig raised in the dehesa with an exclusive diet of acorns and pasture
- There is **no standardised analytical methodology** to differentiate pig feeding regime apart from in-field inspections by certification companies
- Current research lines are focused on the study of **postmortem samples** such as fat, meat or final cured products

Acorn-fed

Outdoor feed-fed

Feed-fed

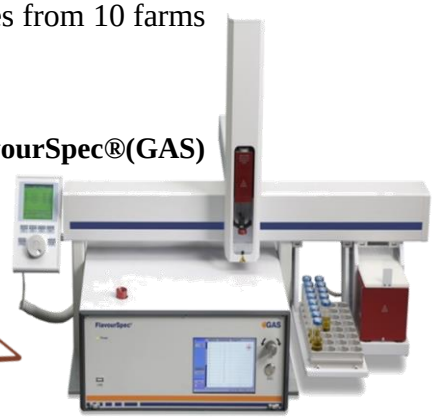
OBJECTIVE

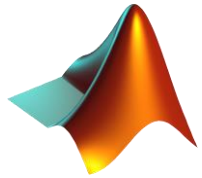
The objective of the present study was the application of **gas chromatography-ion mobility spectrometry (GC-IMS)** as a possible ***in vivo*** methodology to evaluate the diet of Iberian pigs using **faecal volatilome** and its classification in commercial categories according to the **feeding regime**

METHODS

133 individual faeces samples from 10 farms

FlavourSpec®(GAS)





Spectral fingerprint
(non-target)

Partial least squares discriminant analysis **(PLS-DA)**

RESULTS AND DISCUSSION

- The resulting model achieved a final validation success % of 92.3: Only two acorn-fed samples were incorrectly classified as outdoor feed-fed. These results are consistent considering the variable food intake of acorn-fed pigs.
- The homogeneity of a diet based on feed shouldn't be compared to the heterogeneous feeding of natural resources.
- The good results obtained in the present study show the possibilities that this methodology can have in the support of field inspections.